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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/030,692	01/14/2002	Hans Rudolf Muller	EPROV 17	8615
23599 7590 02/28/2007 MILLEN, WHITE, ZELANO & BRANIGAN, P.C. 2200 CLARENDON BLVD. SUITE 1400 ARLINGTON, VA 22201			EXAMINER BERCH, MARK L	
			ART UNIT 1624	PAPER NUMBER
SHORTENED STATUTORY PERIOD OF RESPONSE		MAIL DATE	DELIVERY MODE	
3 MONTHS		02/28/2007	PAPER	

**Please find below and/or attached an Office communication concerning this application or proceeding.**

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

<b>Office Action Summary</b>	<b>Application No.</b> 10/030,692	<b>Applicant(s)</b> MULLER ET AL.	
	<b>Examiner</b> Mark L. Berch	<b>Art Unit</b> 1624	

**-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --**

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
  - If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
  - If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
  - Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 27 February 2006.
- 2a) ☒ This action is **FINAL**.                      2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-19, 29-31, 33-43 and 45-48 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-19, 29-31, 33-43 and 45-48 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
 Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some    \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |                                                                                                                        |                                                                                         |
|------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)                                            | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                                   | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____                                                |

## DETAILED ACTION

### *Claim Rejections - 35 USC § 112*

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 1-19, 29-31, 33-43, 45-48 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

1. The first formula inserted into claim 1 is defective; the N atoms on the right ring have only two bonds. If a H is intended as the third valence, it should be put in place (not how the N at the 3-position is done)
2. The amendment to claim 18 has garbled the claim. It ends with a reference to "a bridging group of a monovalent radical", which makes no sense. A bridging group is a divalent radical.
3. The "heterocycloaliphatic" in claim 43 is ambiguous. Does this mean a) "Cycloaliphatic" substituted by a heteroatom, e.g. amino-cyclohexyl, b) "Cycloaliphatic" attached by a heteroatom, e.g. cyclohexyloxy c) a heterocycle attached to an aliphatic group, i.e. Heterocycle-aliphatic? For whichever choice is selected, applicants must show that such choice, and not some other, was intended by the specification. The traverse is unpersuasive. Applicants choose yet another option: "The term "heterocycloaliphatic" is ... is a "cycloaliphatic" compound as defined above with at least one heteroatom located in the cycle." On what basis was that choice made rather than any other the other

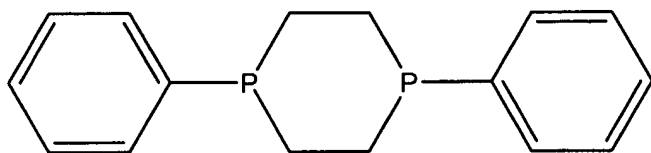
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three? The choice appears to be completely arbitrary. Applicants have supplied two references in this regard, but neither one of them uses the term in question.

4. In claims 14, 30, etc., what exactly is a "ditertiary diphosphine"? Would that include (t-butyl)PH-PH(t-butyl)? It is a diphosphine and it does have two tertiary groups. Would it include (Methyl)<sub>2</sub>P-P(methyl)<sub>2</sub>? What about (Methyl)P=C=P(methyl) or (Methyl)P=CH-HC=P(methyl) or (Methyl)P=P(methyl)? The traverse is unpersuasive. Applicants state that it means R<sub>2</sub>P-R-PR<sub>2</sub>, where R is a hydrocarbyl group, and to support this applicants say: "according to IUPAC nomenclature under phosphines, tertiary phosphines are characterized by the structure R<sub>3</sub>P, wherein R means a hydrocarbyl group." But this is contradictory. If a phosphine is R<sub>3</sub>P, wherein R means a hydrocarbyl group, then neither P atoms in R<sub>2</sub>P-R-PR<sub>2</sub> qualifies, since each P has two hydrocarbyl groups, and a third group, the -R-PR<sub>2</sub>, which is not a hydrocarbyl group, since a hydrocarbyl group has just H and C. Applicants cannot point to a definition, and then turn around and propose a structure that violates it. Further, while the terminal R groups are supposed to be hydrocarbons according what applicants say, claim 18 violates this notion by referring to R<sub>41</sub>, which is "a monovalent radical of a chiral ditertiary diphosphine" as potentially having a N atom present! And claim 16 has the bridging group (there called R<sub>6</sub>) which contains an iron atom. How could something which contains an iron atom be called a hydrocarbyl group? A hydrocarbon cannot have a N atom present. Second, even ignoring that, what is the "ditertiary" doing? According to applicants reason, R<sub>2</sub>P-R-PR<sub>2</sub> would be a diphosphine, a molecule with two phosphine pieces. For all one knows, the tertiary refers to a carbon --- that is, e.g. (t-butyl)P(methyl)-CH<sub>2</sub>-P(methyl)(t-butyl)? This is a diphosphine with the additional

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feature of having two tertiary carbons. Indeed, since the definition of phosphine which applicants have presented already requires that each P be attached to three carbons, it would be logical to assume that the additional requirement of "ditertiary" must be referring to a tertiary carbon. Third, applicants have selected a molecule with one bridge (the -R-) and two terminal units, the R2 on each side. But applicants could just as well have chosen a compound with two bridges and one terminal group, e.g.:



In addition, applicants have not really eliminated other choices. For example, (Methyl)<sub>2</sub>P-P(methyl)<sub>2</sub>, cited above, is called tetramethyl diphosphine. As evidence, the examiner cites 4133831. See Column 5, structure 6, and the text at lines 46-48 which says, "The phosphine compound of the formula (6) may be selected from, for example, the group consisting of tetramethyl diphosphine", which is structure (6), with all R groups as methyl. Applicants in short have presented no compelling argument in favor of their choice, which appears as arbitrary and in fact in violation of the very reference they have cited for support.

Claim 19 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

In Claim 19, what exactly is a "complex acid"? The traverse is unpersuasive. Applicants point to specification page 35, lines 14-16. That gives some "preferred" choices. The claim is not limited to any preferred choices. A few examples do not define a term.

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Indeed, the word "complex" doesn't even appear in the indicated text, so how could it be said to define that term? The examiner notes for example that the first listed choice is  $\text{ClO}_4^-$ . Would  $\text{ClO}_n^-$  qualify for values of n other than 4, i.e. n=0, 1, 2 or 3?

Claims 1-13, 43, 45-48 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

The second (iv) choice for the ligand lacks description in the specification. The specification has a ligand which is a ditertiary diphosphine. But this is a ligand with "two" of these "ditertiary diphosphine groups".

Claims 1-2, 4, 8-19, 29-31, 34-39, 45, 48 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

The amended claim language now permits any substituents at the 6 and 7 position, without limit. Where does the specification teach this? For example, the 6-position could be substituted with e.g. halogen, OH or  $-\text{S}-\text{CH}_3$ . Where does the specification teach this? The same would be true for substituents which spanned the 2 positions, e.g. a tetramethylene bridge between the 6 and 7 positions. The halogen substituent would not even be expected to survive this reaction.

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Claims 1-2, 4, 8-19, 29-31, 34-39, 45, 48 are rejected under 35 U.S.C. 112, first paragraph, because the specification, while being enabling for starting materials monosubstituted at 6-position, 7-position or both, does not reasonably provide enablement for disubstituted starting materials. The specification does not enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make the invention commensurate in scope with these claims.

The amended claim language permits a product having 2 substituents e.g. 6,6-dimethyl. The catalyst would then need to add on one of these substituents to get the final product. The specification does not teach such a process.

This rejection and the previous one can be fixed by limiting to formula A as set forth on page 7 of specification, with the same R100 and R101 substituents put onto the final product.

*Information Disclosure Statement*

Applicants supplied three references but no IDS. The examiner cannot prepare a PTO-892 because it is impossible to tell which reference is which. The references have however been considered.

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, THIS ACTION IS MADE FINAL. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened

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statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Mark L. Berch whose telephone number is 571-272-0663. The examiner can normally be reached on M-F 7:15 - 3:45.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, James O. Wilson can be reached on (571)272-0661. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.



Mark L. Berch  
Primary Examiner  
Art Unit 1624

2/23/2007